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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

001456

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

DATE:

SUBJECT: Mutagenicity Test of Garlon EPA Reg. No. 464-546.
TOX Chem. No. 882I

FROM: William R. Schneider, Ph.D.
Toxicology Branch/HED (TS-769)

TO: Robert Taylor, PM #25
Registration Division (TS-767)

THRU: Edwin R. Budd, Section Head
Section II, Toxicology Branch/HED (TS-769)

Chemical: Triclopyr (Garlon)
3,5,6-Trichloro-2-pyridyl-oxy-acetic acid
purity 98%

Accession No. 242367

Registrant: Dow Chemical Company
P. O. Box 1706
Midland, Michigan 48640

Laboratory: Institute of Environmental Toxicology
Kodaire-Shi
Tokyo, Japan

Study: 1. Bacillus subtilis H17/M45 recombination repair assay (9/4/78).

2. Salmonella typhimurium TA 98/TA 100 reverse mutation pour plate assay, with and without metabolic activation (9/4/78).

Summary of Evaluation

1. B. subtilis recombination repair assay: No mutagenic repair effects seen in the bacteria treated with Garlon.

Study Classification: Acceptable.

2. S. typhimurium TA 98/TA 100 reverse mutation plate assay. No mutagenic effects were seen in the bacteria treated with Garlon, with and without metabolic activation.

Study Classification: Acceptable.

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Material and Methods:

1. Recombination Assay:

A 10 mm disc soaked with Garlon diluted in DMSO was placed on an agar petri dish covering the starting points of B. subtilis streaks. The length of inhibition of strains H17 and M45 (repair deficient) were measured. Negative (kanamycin) and positive (mitomycin C) controls were used. Concentrations of Garlon from 20 to 2000 ug/disk were tested.

2. Reverse Mutation Assay:

The assay was performed according to the protocol of Ames et al (1975), with and without rat liver S-9 microsomal mixture. AF-2 and 2-aminoanthracene were used as positive controls. DMSO was used as a solvent control. Garlon dosage for each ranged from 1 to 5000 ug/plate. Two plates were averaged for each dose level.

Results

1. Recombination Assay:

No growth inhibition was seen in the assay with Garlon. The positive control produced 9 mm inhibition of the B. subtilis M45 streak compared to only 1 mm inhibition of B. subtilis H17. Equivalent inhibition of both strains was produced by kanamycin as a contamination/negative control.

2. Reverse Mutation Assay:

No increase in revertant rate or dose response was produced by Garlon. The average background rates (revertants/plate) in DMSO were 114 without, and 82 with, activation for S. typhimurium TA 100; and 22 without, and 28 with, activation for S. typhimurium TA 98. The positive control average revertant rates were > 3000 for both strains with metabolic activation (2-amino anthracene) and 1135 for TA 100 and 403 for TA 98 without metabolic activation (AF-2).

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Toxicology Branch Evaluation:

The assays appear to have been performed in accordance with the latest scientific literature and there are no inconsistencies in the data and the report.

Garlon has been adequately shown to produce no reverse mutations in S. typhimurium TA 98 and TA 100 and has been shown not to induce DNA repair in B. subtilis under the conditions of these assays.

The controls were adequate to verify the correct functioning of the assays. The translation from the original Japanese was poor in some places but did not seriously affect the interpretation of the data.

OPP:HED:TOX: W.SCHNEIDER:sb 12/1/81 X73710 #1

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